The Challenges of Getting To Mars: Launching Curiosity

Music

Status check to proceed with terminal count.
Atlas systems, propulsion. Go! Hydraulics. Go! Pneumatics. Go! LO2. Go! Water. Go!
Centaur systems, Propulsion. Go! Pneumatics. Go! LO2. Go! LH2. Go!
Electrical systems, airborne. Go! Ground. Go! Facility. Go! RFFTS. Go! Flight control. Go!
Instrumentation. Go! Comm. Go! VCQ. Go! Umbilicals. Go! UCS. Go! Redline monitor. Go!
Quality. Go! OSM. Go! Safety Officer. Go! Range, weather and clear to proceed. Go!

You've worked for years; some of us have worked for 5, 6 years to get to this point. And it always seemed like it was so far away, so far away, it was never really going to come. And what's amazing, when we came down here in June, it still seemed like it was a long way away: July, August, September comes and goes and now you realize, wow, the number of weeks are, you can count on one hand.

I've had the privilege of working with the Mars Science Laboratory Mission for the past 3 years and I will dare say it's probably one of the coolest missions that I've worked on. Not just because of the science objectives but the scale of the rover itself, the challenges that the team has gone through to try and meet the science objectives, to make sure that the payloads and the instruments operate as they should. The launch vehicle that we're using, the Atlas 5-541. This is the first flight of a 541 launch vehicle.

What we do is we rollout the rocket from the vertical integration facility out to the launch pad. We use what's called a 'clean,' launch pad approach, and we do that 2 days before the launch. At that point we connect the rocket and the mobile launch platform to the launch pad and that's how we're able to load our liquid oxygen and liquid hydrogen on board. And actually mate up the electrical connectors that have to power up the rocket and the spacecraft while it's at the pad.

Certainly we're confident in our systems now, but we keep checking them. We have continuous in a series of predefined tests that we do to make sure the launch vehicle is communicating correctly with the spacecraft.

There's a million operating components there and they all need to work all simultaneously.

You don't want any glitches when you get down to just a week before launch. The planets align only every 2 years and you've only got about a 3 week window. So if you're not ready to launch, the planets move out of alignment and you're waiting another 2 years. So it's very critical that we don't have anything that would delay our schedule and make us miss the launch opportunity.

Launch day, the weather doesn't look too bad. There is a front that is pushing through Looks like

Wednesday night, Thanksgiving Day, then it pushes south to central Florida. A bit breezy for rollout on Friday, but we should have descent weather, maybe a threat of an isolated shower coming in with a brisk onshore flow. And that looks similar to Saturday. Looks like the winds decrease just a little bit on Saturday. But anytime we're that breezy with Easterly flow, we expect to see some kind of clouds coming in from the Atlantic, with the threat of an isolated shower, so that's the principal concern right now.

LC this is the LD on channel 1. LC you have permission to launch.
Roger. Proceeding with the count.
T-minus 10, 9, 8, 7, 6, 5, 4, 3, 2, 1.
'Rocket engine rumble, music'

Am I confident that she's gonna go and she's going to be successful? Absolutely!
It's gonna go, and she'll be good.

'Music, cheers'
Music

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